

IOWA energy BULLETIN

Department of Natural Resources
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Developing Renewable Energy Policy:



What's the Best Approach?

The Iowa Department of Natural Resources has asked five representatives of various energy-related organizations to offer their perspectives on the renewable energy tax credit passed by the legislature last year. The representatives (listed here in

alphabetical order) come from state agencies, utility associations, environmental groups and consulting companies. Each was asked two questions: 1) A renewable energy production tax credit was passed in Iowa last year. Does it need to be changed to make it an effective policy for promoting renewable

development in Iowa? If so, how?, and 2) What other policy changes does Iowa need to further our development of renewable energy? The answers given by our participants demonstrate the diverse opportunities and related concerns for developing effective renewable energy policy in the state of Iowa.

continued on page 2

Developing Renewable Energy Policy:



Regi Goodale,
Director of
Regulatory
Affairs, Iowa
Association of
Electric
Cooperatives

1) A renewable energy production tax credit was passed in Iowa last year. Does it need to be changed to make it an effective policy for promoting renewable development in Iowa? If so, how?

The Iowa legislation that passed last year was related to only one type of renewable energy technology — wind. Iowa's electric cooperatives support the ongoing development of many types of renewable energy. While the production tax credit will provide an economic benefit to those who install wind generation, we believe incentives should also be broad-based. We believe incentives should take into account the various types of available renewable resources and offer opportunities to invest in those technologies.

2) What other policy changes does Iowa need to further our development of renewable energy?

It is difficult to address all policy changes related to renewable energy with one brush. We believe incentive-based approaches offer the most viable opportunities to appropriately balance the generation and delivery of power that is safe, reliable, environmentally responsible and affordable.

year. Does it need to be changed to make it an effective policy for promoting renewable development in Iowa? If so, how?

The renewable energy state tax credit is said to be worth less than \$10, due to a bill drafting error in last year's legislation. If there is going to be a meaningful state tax credit to support renewable energy, the law obviously needs to be fixed. However, when I look at the state's policy failures in support of education and water resources — to name just two other areas that compete for state tax dollars — or when I consider legislation that has shifted financial burdens from state to local governments, I think last year's credit may be all we can afford. If the credit is raised to a meaningful level, but funded by reductions in local property tax receipts, my advice is to leave well enough alone. Despite optimism that renewable resources will be built with or without a state tax credit, there are other factors likely to have a greater impact on development of renewable resources. One big factor will be the continuation of a federal tax credit and whether communities, schools, and rural cooperatives receive a comparable subsidy through tradable credits or a similar alternative.

2) What other policy changes does Iowa need to further our development of renewable energy?

Iowa would do well to encourage development of renewable technologies that lend themselves to distributed generation. These are typically smaller scale facilities located on the distribution side — as opposed to the transmission side — of the electricity grid.

Renewable energy in Iowa would also be aided by development of technologies and infrastructure that



reduce the cost, processing (where necessary), and transportation of combustible fuels made from agricultural products, such as corn stalks and switch grass. Combustion or gasification of biomass appears to be a straight-forward proposition. Methane generation from decomposition of animal and plant waste should also be supported, especially since it may have a beneficial effect in better management of manure, which continues to cause unacceptable impacts on the state's water resources.

To the extent renewable energy is currently subsidized, either through tax credits or above-market rates paid by electric consumers, broad-based ownership, such as through municipal utilities, schools, and cooperatives has the added advantage of sharing both the cost and benefits of renewable energy among the taxpayers and rate-payers who ultimately pay for them.



Bob Haug,
Executive
Director,
Iowa Association of
Municipal Utilities

1) A renewable energy production tax credit was passed in Iowa last

What's the Best Approach?



Bob Mulqueen,
Policy Analyst,
Iowa
Environmental
Council

1) A renewable energy production tax credit was passed in Iowa last year. Does it need to be changed to make it an effective policy for promoting renewable development in Iowa? If so, how?

Yes, it needs to be changed. I am assuming that legislation will be offered to bring the yearly tax credit available back to the original amount.

There are two other problems. First, the bill is written in such a way to really only benefit producers over one

megawatt. Also, at the last moment, there was a provision added to it which backfills the amount that the state would lose from giving the tax credits with property taxes from the political subdivisions where the wind turbines were built. The counties and school districts would not garner property taxes from new turbines for at least ten years after they go into operation.

While the Iowa Environmental Council has always supported incentives for wind power, we would prefer more of a mix of incentives, including legislation that would offer small wind producers, such as farmers and small businesses, a tax credit as well. There was an attempt last session to put together that kind of bill but it didn't work out. My belief is that there will be a wind production tax credit for small producers in 2005.

2) What other policy changes does Iowa need to further our development of renewable energy?

For one thing, the renewable portfolio standard should be increased. The standard that went into the code some years ago was based upon 105 MW from renewable energy production and we are now at over 450 MW from renewables. So, perhaps incrementally, we could increase that over the next ten to 15 years.

In addition, more individuals, small businesses, schools and others should be aware of the Iowa Supreme Court decision from this past July. The court agreed

that a small wind energy producer who wants to sell electricity to a rural electric cooperative should be able to take advantage of net metering. The REC in this case was told it needed to net meter the energy that they purchased from the small producer. Small wind producers should be encouraged as a result of this high court decision. We also need to lift the current limitation of 500 KW on net metering. Perhaps local governments should be encouraged to enter into joint ventures with partners in renewable energy production.



Diane Munns,
Chairperson,
Iowa Utilities
Board

1) A renewable energy production tax credit was passed in Iowa last year. Does it need to be changed to make it an effective policy for promoting renewable development in Iowa? If so, how?

During the last legislative session, a wind energy tax credit was passed that applies to facilities that produce wind generation, are located in Iowa, and were originally placed in service on or after July 1, 2004, but before July 1, 2007. The tax credit is one cent per kilowatt hour of qualified electricity produced during the first ten years the facility is in operation. The wind energy tax credit is not allowed if the owner of the facility receives a special electricity property valuation or an exemption from retail sales tax; however, this does not apply to a facility of less than one megawatt. A mistake may have been made in the drafting of the calculation for the tax credit, which could make the tax credit so small that the benefit is negligible. A legislative language change may be necessary to fix this problem.

2) What other policy changes does

continued page 4



What's the Best Approach?

Iowa need to further our development of renewable energy?

Iowa Utilities Board policies and strategies for promoting renewable energy are generally established by the Iowa legislature. Consistent with that direction, the board has an overall policy of encouraging the development of renewable energy and does so within the context of its overall responsibilities, which include consideration of cost, reliability, and all other factors important to providing high-quality utility service at reasonable rates. The economics of renewable energy need to be constantly assessed as technologies improve and as other generation sources increase in cost. Any policy changes should allow for a balancing of all relevant factors.



**Thomas A.
Wind, PE,
Owner,
Wind Utility
Consulting**

1) A renewable energy production tax credit was passed

in Iowa last year.

Does it need to be changed to make it an effective policy for promoting renewable development in Iowa? If so, how?

The renewable energy production tax credit bill that passed last year had a formula error that made it ineffective. If the error is fixed in the new legislation, then the law would likely result in some additional renewable energy. However, I don't think the state tax credit is really necessary to encourage the construction of large wind farms. I think the more important question is whether the tax credit is the best and most cost-effective way to obtain more renewable energy. I think we should consider who bears the cost of these tax credits and who are the primary benefactors. If we want to provide tax credits for renewable

energy, I think we should expect more economic development out of the projects than we have been getting. One way to accomplish this is to only provide tax credits to smaller locally owned projects that provide many more benefits to the local areas and to the state.

2) What other policy changes does Iowa need to further our development of renewable energy?

I believe that a Renewable Portfolio Standard (RPS) is the most cost-effective and fair method of obtaining more renewable energy, if it is applied to all utilities in Iowa, rather than just investor-owned utilities. This type of law would gradually increase the amount of renewable energy over time so that the market place could provide the most cost-effective renewable energy sources. I also believe that local economic benefits would also be increased if part of the new renewable generation requirements could be provided by locally owned projects. These types of projects retain much more of the economic benefits for the local rural areas where they are built. To encourage this local ownership of the renewable energy projects, the RPS could require that perhaps 20 percent of the new renewable energy must be locally owned.



Interconnection Update

Interconnection, the process of connecting a renewable generation unit to the utility electric power distribution system, experienced a busy summer this year at both the federal and state levels.

The Iowa Department of Natural Resources released a handbook, *Merging onto the Electric Transmission System: A Guide to Interconnection*, late this summer, which is available on the DNR's Web site and by contacting Kelley Myers at (515) 281-4876. The handbook provides a primer about interconnection, power purchase agreements, and some issues every potential producer, utility manager, and renewable energy retailer should consider.

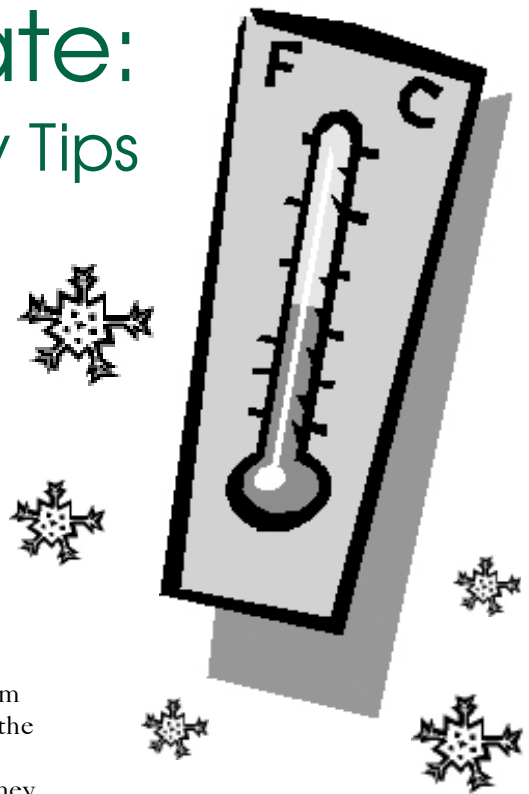
The DNR also moderated and prepared two workshops this summer to educate more Iowans about interconnection issues. The Iowa Association of Municipal Utilities (IAMU) and the DNR partnered to present information about this issue to different utility managers and engineers in the area. The DNR also presented information at the Iowa Renewable Energy Association's Annual Expo.

The Federal Energy Regulatory Commission (FERC) also examined interconnection practices this summer. FERC has solicited comments for a standardized interconnection process for small power generators. FERC has issued standardized rules for generation over 20MW, but these new rules will seek to address the smaller renewable power producers. The new rules, which are expected to be released sometime this fall or winter, may streamline the interconnection process for very small producers and reduce some of the costs and headaches associated with interconnection and power purchase agreements.

The DNR will continue to stay involved in interconnection matters in Iowa. For more information, contact Kelley Myers at (515) 281-4876 or by e-mail at Kelley.Myers@dnr.state.ia.us.

Winter Fuel Update:

Home Energy Efficiency Tips



With temperatures already chilly, the heating season is upon us and consumers can expect higher prices again this year. With an uncertain weather forecast, colder than normal temperatures could mean energy costs take an even bigger bite out of consumers' wallets.

"It's a familiar theme," said Jennifer Moehlmann, energy data analyst for the Iowa Department of Natural Resources. "Iowans have seen higher prices three out of the last four heating seasons. Those who have already invested in energy efficiency measures have seen their savings multiply, but it's never too late to make your home more energy-efficient."

Natural gas prices are expected to be up to 29 percent higher this winter. Approximately 67 percent of Iowans heat their homes with natural gas. High natural gas prices can have an effect on gasoline, crude oil and diesel prices, dragging them upward as well.

Propane prices are forecasted to average 22 percent higher this winter than last. Roughly 15 percent of Iowans use propane for heating their homes.

Heating oil prices are expected to rise the most of all heating fuels, averaging more than 36 percent higher than last winter. Heating oil is used to heat about two percent of Iowa homes.

With these higher than normal prices, investing in energy efficiency measures for your home is a smart choice. Consumers can decrease their heating bills by following a few easy steps provided by the U.S. Department of Energy.

Reduce air leaks

Savings of 10 percent or more can be realized on heating bills just by reducing the air leaks in your home.

- ◆ On a windy day, hold a

lit candle near windows, doors, plumbing, ducting and wiring. If the smoke starts blowing side ways, you've got a leak.

- ◆ Cut off the airflow by taping clear plastic sheeting to the insides of windows, weather stripping doors, and caulking around plumbing, ducting and wiring leaks. Windows can be a major source of energy loss.
- ◆ Consumers are advised to close their curtains and shades at night to conserve heat and open them during the day to take advantage of the sun's warmth.
- ◆ For those with a little more money to spend, consider installing storm windows over single-pane windows or replace them with double-pane windows with low-e coating. Look for the Energy Star® symbol.

Check your insulation

How well is your home insulated?

- ◆ Be sure to insulate your hot water heater and hot water pipes.
- ◆ Check the level of the insulation in your attic, ceilings, exterior and basement walls, floors and crawlspaces to see if it meets the levels recommended for your area. One of the more cost effective ways to make your home more comfortable year round is to add insulation to the attic.

Temperature control

Controlling the temperature in your home can make a big difference to your home heating bills.

- ◆ Installing a programmable thermostat and pre-setting it to a lower temperature when you're sleeping or at work can offset the cost of a basic unit in less than a year.
- ◆ Lowering the thermostat from 72° to 65° for eight hours a day saves up to 10 percent on your heating bill.
- ◆ Be sure to regularly clean or

replace the furnace's air filters, follow the manufacturer's maintenance schedule, and don't block the registers.

- ◆ Installing a new energy-efficient furnace saves money over the long term. Look for the Energy Star® symbol.

Reap the hidden savings

Ducts are a hidden savings opportunity. Even though you can't see them, your ducts may be wasting money.

- ◆ Check your ducts for air leaks. First look for sections that have separated and then look for obvious holes.
- ◆ Insulating ducts in unconditioned spaces is usually very cost-effective. You can lose up to 60 percent of your heated air before it reaches the register if your ducts aren't insulated and they travel through unheated spaces such as the attic or crawlspace. Get a qualified professional to help you insulate and repair ducts.

Following one or more of these energy savings tips is sure to put a dent in your winter heating bill. Implementing these measures early on can result in long term savings. Widespread adoption of these practices leads to less demand, lowering fuel prices and heating costs.

Technology Tracker:

High-Temperature Superconductivity

On August 14, 2003, fifty million people lost power on the East Coast and in Canada. The blackout caused billions of dollars in economic losses.

Even though a blackout of this magnitude is not likely to happen in the Midwest, the electric transmission system, also known as the grid, is under stress here as well. Electric consumption and generation have steadily grown, but investment in the transmission system has not kept up.

“Even in the Midwest, transmission constraints cause economic curtailments and limit economic transactions on the grid,” said Tommi Makila, DNR program planner.

Besides increased monetary investment, most experts agree that new technologies are needed to modernize and strengthen the grid. One of these new technologies is high-temperature superconductivity.

What is superconductivity?

Superconductors are materials that conduct electricity without any resistance or energy losses. In known materials, superconductivity happens only at extremely low temperatures. For the electric power sector, “high-temperature” superconductors that operate in the temperature range of liquid nitrogen (above -321 Fahrenheit) offer the greatest potential. Liquid nitrogen is relatively inexpensive compared to liquid helium, which is used to cool most “low-temperature” superconductors.

Superconductive materials can be utilized in many applications for the electric power sector. Superconductive wire can be used to manufacture electric transmission cables, generators, transformers and large motors. Because of the large current carrying capacity of superconductive wire, all of these applications would be more efficient and

significantly smaller in size compared to existing conventional devices. For example, superconductive transmission cable can carry three to five times the current of a copper cable of the same size.

Technology Development

This technology has also enabled the development of new types of devices, such as fault current limiters and superconductive magnetic energy storage devices. Fault current limiters are devices that detect a fault current – which can be caused by lightning or a downed line – and suppress it very quickly, protecting other equipment on the grid. Superconductive magnetic energy storage devices strengthen the grid by stabilizing line voltages and providing momentary back-up power.

The U.S. Department of Energy, several national laboratories, universities and private companies are investing significant resources to develop superconducting devices for the electric power sector. Currently, these research and development efforts have two focus areas: the development of cost-efficient techniques to manufacture competitively priced superconductive wire and demonstration projects to prove the viability of the technology.

“While many technical challenges remain, it is expected that in the next few years some of these applications will become commercially viable and enter the market,” said Makila.

With funding from the U.S. Department of Energy, the Iowa DNR has prepared a presentation about high-temperature superconductivity and its applications for the electric power sector. To schedule a free presentation for your company or organization anywhere in the upper Midwest, contact Tommi Makila at (515) 281-8852 or by e-mail at Tommi.Makila@dnr.state.ia.us.

BECE Policy Package Available Now

The Iowa Department of Natural Resources (DNR) released its Building Energy Code Education (BECE) Policy Package in late October 2004. The policy package summarizes both residential and commercial building energy code differences and describes the building energy code adoption process.

A CD-ROM containing recent case studies and a DNR statewide survey of Iowa building officials is available upon request. The CD-ROM features:

- ◆ A case study that assesses new residences for the quality and rate of compliance of energy efficient construction practices relevant to the 1992 MEC, 1995 MEC, and the 2000 International Energy Conservation Code (2000 IECC);
- ◆ A study completed by Iowa State University analyzing energy costs in homes built to different building energy code standards and the cost of energy efficiency upgrades in 30 homes across Iowa;
- ◆ A statewide survey of building officials to determine which communities have adopted and enforce building energy codes and specific barriers to local building energy code adoption and enforcement; and
- ◆ A guide to educate building energy code advocates and elected officials about adoption, compliance and enforcement of building energy codes.

For more information, contact Michael Adams with the DNR at (515) 281-4262 or by e-mail at Michael.Adams@dnr.state.ia.us.

DNR Corner

DNR Awarded \$570,367 From U.S. Department of Energy

The Iowa Department of Natural Resources has announced that the U.S. Department of Energy (DOE) will provide \$570,367 to the state of Iowa for five energy efficiency and renewable energy projects. Funding is being provided through DOE's State Energy Program Special Projects competitive grants.

"The federal grant money is both a recognition of Iowa's past accomplishments and a challenge to us to continue to develop renewable energy and energy efficiency programs," said Allan Goldberg, DNR energy supervisor. "This federal funding will allow us to address specific needs and issues to help our state become more energy independent."

The five projects being funded are as follows:

◆ **Industrial Technologies (\$149,971)**- This project partners the DNR with Des Moines Area Community College (DMACC), industry and other stakeholders to design a curriculum for a diploma program in industrial energy efficiency and waste minimization.

◆ **Rebuild Iowa (\$130,000)**- The DNR will develop a series of sustainability and energy efficiency courses at several small universities and colleges throughout Iowa. New Rebuild Iowa communities will also be established to identify and implement energy saving improvements within their communities.

◆ **Building America (\$100,000)**- The

DNR will help research and test an affordable model design home with highly advanced energy efficient "whole building" technologies. The goal is to make buying a home both economical and environmentally friendly.

◆ **Solar Technology (\$65,400)**- Working with Alliant Energy and the Iowa Renewable Energy Association, the DNR will install a 7,200-watt solar array on a converted former warehouse building in Cedar Rapids. The building is located in a designated brownfield area, which is being redeveloped by the City of Cedar Rapids and private building owners.

◆ **State Wind Energy Support – Tall Towers (\$124,996)**- In a partnership with the Iowa Energy Center, the DNR proposes to establish a tall tower wind measurement program in Iowa to better understand wind characteristics that are important to wind energy development and operations.

The Iowa Energy Center has provided over \$430,000 for the project.

"This is a major extension of our previous wind study," said Floyd Barwig, Iowa Energy Center director. "The size and height of wind turbines continue to increase so the data gathered from the Tall Towers study is vital."

Funding has also been announced from the DOE for another DNR project, Iowa's Million Solar Roofs Initiative, which will educate and inform Iowans about the benefits of using solar power.

For more information, contact Kelley Myers at (515) 281-4876 or by e-mail at Kelley.Myers@dnr.state.ia.us.

Be a Gas Monitor!

We need your help to monitor the state's gas prices. All you need to do is choose a nearby gas station, record the gas pump prices on the 15th of each month and then report the information to the DNR through a phone call, e-mail or online.

For more information, contact Dave Evans with the DNR at (515) 281-6150; e-mail Dave.Evans@dnr.state.ia.us

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Events Calendar

Application Deadline

January 31, 2005. Deadline for businesses and students for the Pollution Prevention Intern Program. The nationally award-winning program places college graduate level and upper level undergraduate students in industries to help companies identify, evaluate, and implement pollution prevention projects. For more information, contact Jan Loyson with the DNR at (515) 281-4142 or by e-mail at Jan.Loyson@dnr.state.ia.us.

Annual Analysts Workshop

February 3, 2005. This annual qualification workshop is required for PEs, architects and CEMs who wish to perform Technical Engineering Analysis and/or Energy Audits for facilities enrolled in the DNR's Building Energy Management Programs. The workshop will be held at Consumers Energy in Marshalltown on Thursday, February 3 from 8:00 a.m. to 4:30 p.m. Lunch will be provided. Online registration is available at www.iowadnr.com/energy/workshop.html. For more information, contact Danielle Dilks with the DNR at (515) 281-8063 or by e-mail at Danielle.Dilks@dnr.state.ia.us.

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